

**REMARKS**

Applicant has reviewed and considered the Office Action mailed on July 1, 2003, and the references cited therewith. Claim 1 has been amended to more particularly point out the claimed subject matter, but no new matter has been added. In particular, claim 1 has been amended to recite the range of  $t$  as about 200 to about 1000, and to correct a typographical error. The recited amendment to claim 1 is supported in the specification at page 5, line 3, at page 9, line 24, and in claim 5 as originally presented. Also, the structure of formula (III) in claim 1 and in the specification has been amended to remove three methylene groups improperly included in the application. The amendment serves to clarify and correct the record. “[A] structural formula may be corrected without violation of 35 U.S.C. 132, if “there is sufficient evidence in the record to show the (proposed structure) to be an inherent characteristic of the subject matter so identified.” *Ex parte Marsili, Rossetti and Pasqualucci*, 214 U.S.P.Q. 904,906 (PTO Bd. App. 1979) (citing *In re Magerlein et al.*, 52 C.C.P.A. 1637, 346 F.2d 609, 145 U.S.P.Q. 683 (1965)). Support for the amendment can be found in the specification at page 2, lines 3-5 of the first full paragraph. As such, no new matter has been added by way of amendment.

Claim 5 has been canceled.

Claims 50-61 have been added. For the Examiner’s convenience, it is noted that claim 50 recites the range of  $z$  as about 200 to about 500 and claim 56 recites the range of  $l$  as about 200 to about 500. Support for the new claims can be found, e.g., in the specification at pages 3-6, 9-10, and in claims 3 and 4 as originally presented. No new matter has been added.

Claims 1-4, 6-12 and 50-61 are now pending in this application.

**§103 Rejection of the Claims**

Claims 1-10 were rejected under 35 USC § 103(a) as allegedly being unpatentable over Article of Xiang, Maoliang et al.”Surface Stability in Liquid-Crystalline Block Copolymers with Semifluorinated Monodendron Side Groups”, Macromolecules, Vol. 33, No. 16, (08/2000), pages 6106-6119 (cited by applicants in the Form 1449) (Xiang) for the reasons set forth on pages 2-3 of the Office Action. Claims 1-12 are rejected under 35 USC § 103(a) as allegedly being unpatentable over Xiang in view of Ober et al. U.S. Patent 5,907,017 (cited by applicants in the form 1449) (the ‘017 patent) for the reasons set forth on pages 3-4 of the Office Action.

The references cited by the Examiner, alone or in combination, do not provide a suggestion or motivation to modify or combine the reference teachings in a manner necessary to arrive at the claimed invention. This rejection is respectfully traversed.

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d (BNA) 1596, 1598 (Fed. Cir. 1988) and *In re Piasecki*, 745 F.2d at 1472, 223 U.S.P.Q. at 788. If the Examiner does not establish a *prima facie* case, the applicant is under no obligation to submit evidence of non-obviousness. M.P.E.P. § 2142. To establish a *prima facie* case of obviousness, three criteria must be met.

First, the reference (or references) relied upon must teach or suggest all the limitations of the claims. See *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970) ("All words in a claim must be considered in judging the patentability of that claim against the prior art.").

Second, the reference (or references) relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. See *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Skinner*, 2 U.S.P.Q.2d 1788, 1790 (Bd. Pat. App. & Int. 1986).

Third, the proposed modification of the reference (or references) relied upon must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. In other words, a hindsight analysis is not allowed. See *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991); *In re Erlich*, 3 U.S.P.Q.2d 1011, 1016 (Bd. Pat. App. & Int. 1986).

### Claims 1-12

Regarding claims 1-12 as amended, Xiang does not teach or suggests all the limitations of the claims. Applicant's range of values for the variable *t*, as amended, is about 200 to about 1000. Xiang discloses the use of a polyisoprene block in a copolymer, but provides no specific values for *y* (the Xiang variable that represents the total pairs of modified isoprene monomers; similar to Applicant's variable *t*). One may, however, calculate corresponding values for *t*

disclosed in Xiang by dividing the molecular weight of the relevant polyisoprene blocks (of the starting polymer, as found on page 6112, Table 1, third and fourth entries) by the molecular weight of an isoprene monomer (68.12 a.m.u.) to give the total number of isoprene units, and dividing by two (because formula (I) contains two isoprene derived units). The relevant values for  $t$  calculated from Table 1, therefore, are about 49 and about 40 (third and fourth entries; starting PI equal to 6.7K and 5.5K, respectively). The reference relied upon by the Examiner must teach or suggest all the limitations of the claims. The Xiang values (49 and 40) corresponding to Applicant's  $t$  are outside the range (200-1000) claimed by the invention as amended. Thus, the reference does not teach or suggest all the claim elements of Applicant's invention.

At pages 3-4 of the Office Action, the Examiner proposed that the '017 patent suggested the requirements of claims 11 and 12 could be reached by using the fluorinated block copolymer of the Xiang reference for producing a blend with other thermoplastic polymers. The combination, however, does not produce a polymer within the recited range of values of  $t$  in claim 1 as amended. Furthermore, one of ordinary skill in the art would not be motivated to produce the invention of claims 11 and 12 from the cited references because the '017 patent suggests a blend with various homogeneous polymers, whereas claims 11 and 12 claim a blend with a thermoplastic elastomer block copolymer. The two references cited by the Examiner, alone or in combination, do not suggest all the limitations of claims 11 and 12.

The rejection of claims 1-12 under U.S.C. § 103 as rendered obvious by Xiang in view of the '017 patent cannot stand and should be withdrawn.

#### Claims 50-61

For the reasons set forth above, claims 50-61 are patentable over the references cited by the Examiner. Additionally, Applicant's range of values for the variable  $z$  in claim 50 is about 200 to about 500. Xiang provides no specific values for  $z$  (the modified isoprene monomer with a free hydroxyl group). One can calculate values for  $z$  by dividing the molecular weight of the relevant polyisoprene block (of the starting polymer) by the molecular weight of an isoprene monomer and multiplying the product by the percent of free alcohol units remaining in the isoprene-derived block (100% minus the "attachment ratio" in Table 1, entry 4, page 6112)

produced after the hydroboration/oxidation procedure. The highest value obtainable by the data in Xiang is for the 3-armed monodendron, derived from a 23.7% attachment ratio (page 6113, Table 2) for the 6.7K starting polyisoprene block. The molecular weight of that starting polyisoprene block (6700) divided by the molecular weight of an isoprene monomer (68.12) produces about 98 repeating isoprene units. A side chain attachment ratio of 23.7% indicates that the amount of free alcohol monomers is 76.3%. The Xiang value of  $z$  is then found by multiplying 98 by 0.763, which is about 75. The Xiang value for  $z$  is well outside the range of  $z$  recited in claim 50 (200-500). Thus, the reference does not teach or suggest all the claim elements of Applicant's invention.

Applicant's range of values for the variable  $I$  in claim 56 is about 200 to about 500. Xiang provides no specific values for  $I-z$  (the Xiang variable that represents the modified isoprene monomer with attached side chain; similar to Applicant's variable  $I$ ). One can calculate values for  $I$  by dividing the molecular weight of the relevant polyisoprene block (of the starting polymer) by the molecular weight of an isoprene monomer and multiplying the product by the given "attachment ratio" produced after the hydroboration/oxidation procedure. The highest value obtainable by the data in Xiang is for the 2-armed monodendron and is derived from an ~80% attachment ratio (page 6111, fifth full paragraph, second sentence) for the 6.7K starting polyisoprene block. The molecular weight of that starting polyisoprene polymer (6700) divided by the molecular weight of an isoprene monomer (68.12) produces about 98 repeating isoprene-derived units. A side chain attachment ratio of ~80% is the maximum possible value suggested by Xiang. The Xiang value of  $I$  is then found by multiplying 98 by 0.80, which is about 78. Such a value for  $I$  is well outside the range of  $I$  recited in claim 56 (200-500). Thus, the reference does not teach or suggest all the claim elements of Applicant's invention.

Withdrawal of the rejection of claims 1-12 under 35 USC § 103(a) is earnestly requested.

Allowance of claims 1-4, 6-12, and 50-61 is earnestly requested.

**AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111**

Serial Number: 10/041,757

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Title: POLYMER MATERIAL WITH STABLE NON-WETTING SURFACE

**Page** 13

Dkt: 1153.027US1

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 359-3261) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743

Respectfully submitted,

CHRISTOPHER K. OBER ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. Box 2938  
Minneapolis, MN 55402  
(612) 359-3261

Date 10/11/03

By 

Gary J. Speier  
Reg. No. 45,458

**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 18 day of October, 2003.

Dawn M. Poole

Name

Dawn M. Poole

Signature